

Application No.: 10/659,932  
Response to OA dated: April 26, 2006  
Response dated: October 18, 2006

**Remarks**

The above Amendments and these Remarks are in reply to the Office Action mailed April 26, 2006. A Petition for Extension of Time is submitted herewith, together with the appropriate fee.

**I. Summary of Examiner's Rejections**

Prior to the Office Action mailed April 26, 2006, Claims 1-196 were pending in the Application. In the Office Action, Claims 4-6, 15, 23, 29-84, 91-93, 102 and 126-196 were rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Claims 103-115 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 85-90 were objected to under 37 C.F.R. 1.75(c) as its last limitation being of improper dependent form. Claims 1, 2, 7-14, 16-22, 24-28, 85-90, 94-101 and 116-125 were rejected under 35 U.S.C. 102(e) as being anticipated by Gruber et al. (U.S. Patent No. 6,439,469, hereinafter Gruber). Claims 1, 2, 7-14, 16-22, 24-28, 85-90, 94-101 and 116-125 were rejected under 35 U.S.C. 102(e) as being anticipated by Saebi (U.S. Patent No. 6,721,684).

**II. Summary of Applicant's Amendment**

The present Response amends the Specification, amends Claims 1, 29, 57, 85, 103, 115, 140 and 169, and cancels Claims 2, 16, 32, 58, 86 and 172, leaving for the Examiner's present consideration Claims 1, 3-15, 17-31, 33-57, 59-85, 87-171 and 173-196. Reconsideration of the Application, as amended, is respectfully requested. Applicant respectfully reserves the right to prosecute any originally presented or canceled claims in a continuing or future application.

**III. Claim Rejections under 35 U.S.C. §112, first paragraph**

In the Office Action mailed April 26, 2006, Claims 4-6, 15, 23, 29-84, 91-93, 102 and 126-196 were rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. In particular, it was proposed in the Office Action that the use of the term "default" in paragraph 25 of the Specification had not been clearly explained. Furthermore, it was proposed that there was not provided an explanation of how elements such as HVAC equipment

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and schedules of occupancy modify, alter, improve or effect the model described throughout paragraph 24.

Applicant respectfully disagrees. The use of the term "defaults" and the various elements listed in paragraph 25 are explained in further detail in paragraphs 56-66 and Figure 5 of the Specification. However, for purposes of clarity, the present Response hereby amends paragraph 25 so as to more clearly explain the term "defaults" and various examples of elements included therewith.

No new matter has been added. Support for the amendment to paragraph 25 can be found at least in paragraphs 21 and 56-66 of the Specification (e.g. see "numeric values throughout the model..." par.[0057]; "if the model is a gbXML document, the default space information can be readily associated with the Space, Construction, IntEquip, and Schedule gbXML elements in the document." par.[0062]; and "if the model is a gbXML document, the default building information can be readily integrated. Schedule information can be associated with the Schedule gbXML element..." par.[0062]; as well as other portions of the Specification)

Applicant respectfully submits that as amended, paragraph 25 (along with other portions of the Specification) properly explains the use of the term "defaults" to a person of ordinary skill in the art. Accordingly, Claims 4-6, 15, 23, 29-84, 91-93, 102 and 126-196 comply with the requirements of 35 U.S.C. 112, first paragraph, and reconsideration thereof is respectfully requested.

#### **IV. Claim Rejections under 35 U.S.C. §112, second paragraph**

Claims 103-115 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the term "content," as used in Claim 103 was cited as not having been defined in the claim nor the specification.

The present Response hereby amends Claims 103 and 115 so as to more clearly define the embodiment therein. Support for the amendments in Claims 103 and 115 can be found at least in paragraphs 84-88 of the Specification. Applicant respectfully submits that as amended, Claims 103-115 comply with the requirements of 35 U.S.C. 112, second paragraph, and reconsideration thereof is respectfully requested.

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**V. Claim Objections under 37 C.F.R. §1.75(c)**

In the Office Action mailed April 26, 2006, Claims 85-90 were objected to under 37 C.F.R. 1.75(c) as its last limitation being of improper dependent form. In particular, the limitation "wherein the 3D representation of the building is a comprehensive and accurate geometric representation of the building" was objected to as being a general comment on the outcome of the simulation and not adding any limitation to the optimization or simulation.

The present Response hereby amends Claim 85 so as to more clearly define the embodiment therein. Applicant respectfully submits that as amended, Claims 85-90 comply with the requirements of 37 C.F.R. 1.75(c), and reconsideration thereof is respectfully requested.

**VI. Claim Rejections under 35 U.S.C. §102(e)**

In the Office Action mailed April 26, 2006, Claims 1, 2, 7-14, 16-22, 24-28, 85-90, 94-101 and 116-125 were rejected under 35 U.S.C. 102(e) as being anticipated by Gruber et al. (U.S. Patent No. 6,439,469, hereinafter Gruber). Claims 1, 2, 7-14, 16-22, 24-28, 85-90, 94-101 and 116-125 were rejected under 35 U.S.C. 102(e) as being anticipated by Saebi (U.S. Patent No. 6,721,684).

**Claim 1**

Claim 1 has been amended in order to more clearly define the embodiment therein. As amended, Claim 1 defines:

*1. A method of analyzing the energy requirements of a building using a computer network, comprising:*

*under control of a first process:*

*providing a first representation of the building, wherein the first representation of the building includes a complete and detailed geometry of: the building, spaces in the building, building surfaces and building openings;*

*providing the first representation to a second process on the computer network;*

*under control of the second process:*

*performing an energy analysis of the building based on the first representation by determining energy use and cost of the building using information that includes one or more of the building's geographical location, three-dimensional geometry,*

*construction materials, utility rate schedule and HVAC equipment;  
providing results of the energy analysis wherein the results are available on  
the computer network; and  
utilizing the results of the energy analysis in order to optimize the first  
representation of the building wherein optimizing includes performing one or more  
simulations while varying parameters of the first representation of the building and ranking  
results of the simulations according to a predetermined criteria;  
wherein the first process and the second process can communicate using the  
computer network.*

As amended Claim 1 defines a method for analyzing the energy requirements of a building using a computer network. A first representation of the building is provided, which includes a complete and detailed geometry of the building, its spaces, surfaces and building openings. Under the second process, an energy analysis of the building is performed based on the representation of the building. This analysis is done by determining the energy use and cost of the building using information that includes the building's geographical location, its 3D geometry, construction materials, utility schedule and HVAC equipment. The results of such analysis can then be used to optimize the representation of the building. For example, a series of simulations can be performed while varying parameters of the building representation and ranking the results according to a criteria.

The advantages of the features defined in Claim 1 include the ability to optimize the design and geometry of buildings for energy use by performing various energy analyses. By using comprehensive and accurate geometric representations of buildings, the features of various claims allow for an optimal approach to building energy simulations.

Gruber teaches a predictive apparatus for regulating and controlling supply values. More particularly, Gruber appears to disclose a temperature control device for regulating and controlling indoor climate values. In addition, a room model appears to be used to produce a simpler structure that allows the device to use a regulate method based on a heat curve and an optimum start and stop time method. However, Applicant respectfully submits that Gruber fails to disclose the features defined in Claim 1.

To begin with, Gruber fails to disclose a representation of the building that includes a complete and detailed geometry of the building, spaces in the building, building surfaces and

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building openings, as defined in Claim 1. Instead, Gruber uses thermodynamic representation of two energy balances consisting of temperatures, energy flows, mass flows, heat capacities in order to derive a 2<sup>nd</sup> order room model that has no geometric information of the room nor the building. This 2<sup>nd</sup> order room model is not a comprehensive and accurate geometric representation of the building, as defined in Claim 1.

Gruber also fails to disclose utilizing the results of the energy analysis in order to optimize the first representation of the building, as defined in Claim 1. This feature of Claim 1 allows the system to optimize any geometric entities or physical object for energy use. Gruber, on the other hand, merely allows one to vary mass flows and temperatures of those mass flows to optimize energy. It does not allow optimization of a building or room geometric entity, such as a representation of the building, as defined in Claim 1.

Furthermore, Gruber fails to disclose that the optimizing step includes performing one or more simulations while varying parameters of the first representation of the building and ranking results of the simulations according to a predetermined criteria, as defined in Claim 1. The parameters of the comprehensive first representation include 1) HVAC equipment; 2) weather-related information; 3) interior/exterior construction; 4) interior/exterior lighting equipment; 5) schedules of operations for interior/exterior lights; 6) interior/exterior equipment; 7) schedules of operations for interior/exterior equipment; 8) air flow information; 9) schedules of operations for heating, ventilation and/or air conditioning equipment; 10) number of people; 11) schedules of occupancy for people; and 12) any additional information necessary to conduct a building energy analysis (e.g. see Claims 4, 29, 32, 60, 91, 126-127, 144, 172). Gruber fails to disclose varying these parameters while performing simulations in order to optimize the first representation of the building, as defined in Claim 1. Furthermore, Gruber does not appear to be at all concerned with ranking the results of such simulations, as defined in Claim 1.

Saebi, on the other hand, teaches a method of manufacturing and analyzing a composite building. More particularly, Saebi appears to disclose using a CAD drawing of a building in order to run analyses of various loads on the building in order to analyze its strength (Claim 1, Summary). Furthermore, Saebi discloses a building that has a high insulation value to lower the energy consumption of the house (col. 1, lines 53-55). However, Applicant respectfully submits that Saebi

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does not disclose the features of Claim 1 as amended.

Firstly, Saebi fails to disclose performing an energy analysis of the building based on the first representation by determining the energy use and cost of the building, using information that includes one or more of the building's geographical location, three-dimensional geometry, construction materials, utility rate schedule and HVAC equipment, as defined in Claim 1. Instead, Saebi discloses an analysis of a thermal load. A thermal load analysis is different from an energy analysis of a building, as defined in Claim 1. For example, energy analysis calculates energy use and cost of the building by analyzing energy related items, such as HVAC equipment, weather-related information, interior/exterior lighting equipment, schedules of operations for interior/exterior lights, interior/exterior equipment, schedules of operations for interior/exterior equipment, air flow information, schedules of operations for heating, ventilation and/or air conditioning equipment, number of people, schedules of occupancy for people and any additional information necessary to conduct a building energy analysis. Saebi would not allow such energy analysis since it does not concern itself with providing a complete representation of the building for conducting the energy analysis.

Secondly, Saebi also fails to disclose utilizing the results of the energy analysis in order to optimize the first representation of the building wherein optimizing includes performing one or more simulations while varying parameters of the first representation of the building and ranking results of the simulations according to a predetermined criteria, as defined in Claim 1. Saebi fails to disclose any optimizing of the building for energy use, nor optimizing any representation of the building. Therefore, Saebi also does not concern itself with performing one or more simulations while varying the parameters of the representation, nor ranking the results of such simulations, as defined in Claim 1.

In view of the above comments, Applicant respectfully submits that Claim 1, as amended, is neither anticipated by, nor obvious in view of the cited references, and reconsideration thereof is respectfully requested.

#### **Claims 29, 57, 85, 103, 116, 126, 140, 141 and 169**

Claims 29, 57, 85, 103, 116, 126, 140, 141 and 169 contain at least some of the features

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discussed above in connection with Claim 1. As such, the remarks made above in regards to Claim 1, are incorporated herein by reference. Accordingly, Claims 29, 57, 85, 103, 116, 126, 140, 141 and 169 are likewise neither anticipated by, nor obvious in view of the cited references, and reconsideration thereof is respectfully requested.

In addition, Claims 29, 140 and 169, as amended, define automatically providing default values for the first representation for performing an energy analysis of the building, wherein the default values include at least one of: 1) HVAC equipment; 2) weather-related information; 3) interior/exterior construction; 4) interior/exterior lighting equipment; 5) schedules of operations for interior/exterior lights; 6) interior/exterior equipment; 7) schedules of operations for interior/exterior equipment; 8) air flow information; 9) schedules of operations for heating, ventilation and/or air conditioning equipment; 10) number of people; 11) schedules of occupancy for people; and 12) any additional information necessary to conduct a building energy analysis. Applicants respectfully submit that neither Gruber nor Saebi discloses automatically providing such default values for the first representation of the building, as defined in these claims.

#### **Claims 2, 16, 32, 58, 86 and 172**

Claims 2, 16, 32, 58, 86 and 172 have been canceled, rendering any rejection moot as to these claims. Reconsideration of the application is respectfully requested.

#### **Dependent Claims 3-15, 17-28, 30-31, 33-56, 59-84, 87-102, 104-115, 117-125, 126-139, 142-168, 170-171 and 173-196**

Claims 3-15, 17-28, 30-31, 33-56, 59-84, 87-102, 104-115, 117-125, 126-139, 142-168, 170-171 and 173-196 are not addressed separately, but it is respectfully submitted that these claims are allowable as depending from an allowable independent claim, and further in view of the comments provided above. Applicant respectfully submits that these Claims are similarly neither anticipated by, nor obvious in view of the cited references, and reconsideration thereof is respectfully requested.

It is also submitted that these claims also add their own limitations which render them patentable in their own right. Applicant respectfully reserves the right to argue these limitations

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should it become necessary in the future.

**VII. Conclusion**

In view of the above amendments and remarks, it is respectfully submitted that all of the claims now pending in the subject patent application should be allowable, and reconsideration thereof is respectfully requested. The Examiner is respectfully requested to telephone the undersigned if he can assist in any way in expediting issuance of a patent.

Enclosed is a PETITION FOR EXTENSION OF TIME UNDER 37 C.F.R. § 1.136 for extending the time to respond up to and including October 26, 2006.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 06-1325 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

Date: October 18, 2006 By: /Justas Geringson/  
Justas Geringson  
Reg. No. 57,033

Customer No.: 23910  
FLIESLER MEYER LLP  
Four Embarcadero Center, Fourth Floor  
San Francisco, California 94111-4156  
Telephone: (415) 362-3800